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THE DECREASING FINANCIAL RETURNS UPON URBAN STREET RAILWAY PROPERTIES

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The electric railway properties of the United States constitute one of the most valuable assets of the nation. The rapid increase in mileage which followed the introduction and development of electricity, the success of these enterprises from a financial standpoint and the immense benefits which they have conferred upon the population tributary to them, have been some of the most notable achievements of the last two decades. The securities of these companies have become a favorite field for conservative investors. According to the last census enumeration, made in 1907, over \$3,774,000,000 of this class of securities were outstanding,—a sum exceeding in amount two-thirds of the investment in all forms of manufacturing property in the United States. This enormous volume of securities is owned by uncounted thousands of the most progressive and substantial people in the country.

There is no industry in which the public exhibit a livelier or keener interest. The intimate contact into which everyone is brought with these properties and the comparative simplicity of the business is probably responsible for this widespread interest and for the growth of the general belief that the public knows all about this business. There is, moreover, no industry in which the public plays so important a part in its affairs. Not only does it depend for its earnings upon the small contributions of many thousands of people, but its very existence is based upon franchises secured from the state and the municipalities.

The view which the public takes of any particular company, determines, to a large degree, the success or failure of that enterprise. If public sentiment is favorable and intelligent, this furnishes one of the greatest assurances of safety. If, on the other hand, public sentiment is hostile, the company finds at every step determined opposition thwarting or nullifying its efforts for improvement.

One of the most firmly fixed beliefs in the public mind is that the street railway industry is one of abnormally large profits, which, moreover, increase in arithmetical ratio with little or no effort on the part of the company. The basis for this widespread conclusion is not difficult to find. The history of every large urban system seems to substantiate this conclusion, for a cursory examination of a comparative table of earnings shows a rapid and uninterrupted growth in the net income of the companies, keeping pace with the growth in the size of the communities. These earnings have in most cases been made the basis of capital issues, the proceeds of which sometimes have not been used for the benefit of the property. Service has frequently been skimmed in order that dividends or interest might be paid upon these additional liabilities.

The people have seen merger succeeding merger, bringing an ever increasing load of fixed charges. They have come to believe that they are being needlessly taxed for a return upon a large part of the securities outstanding which represents no real investment. The basis of the agitation which exists in almost every city against the traction companies is founded, in other words, upon the belief that the traction companies are, without exception, grossly over-capitalized, and that this capitalization results in direct harm and disadvantage to the traveling public.

From this beginning, which it should be noted in fairness, is in most cases the result of the mistakes of a previous generation, has grown up a spirit of antagonism and disbelief in the honesty and good intentions of electric railway managers, which makes it very difficult, if not impossible, to secure a calm and unbiased judgment from the public upon any question of mutual interest. The people of our large cities have fallen into the habit of endeavoring by every means to expedite their selfish interests, believing that no matter how successful their efforts may be they will secure no more than their just share of the increment in earnings resulting from the growth in the cities.

This attitude on the part of the public is most unfortunate. The company can only secure justice if the public possesses a full understanding of the difficulties and limitations of the industry. It is most important that the public cease to turn a deaf ear to the statements of the companies, and that the companies on the other hand treat the public with the utmost frankness concerning matters

in which they have a legitimate interest. There is no matter in which it is more important that the public receive the fullest, frankest and most complete information than that concerning the earnings and financial problems of electric railway properties.

The urban street railway industry at the present time is facing a financial crisis. For some years it has been evident that the net earnings of these properties instead of increasing, as heretofore, with mathematical exactitude have remained almost stationary, or in some cases have actually declined, in spite of evidence that the communities are growing, and that the volume of traffic has largely increased. To electric railway managers and students of the electric railway business, the reasons for this condition are not difficult to ascertain. The public at large, most unfortunately, is totally ignorant of the existence of the situation.

The reasons for the diminishing returns upon urban street railway properties are: (1) the decrease in the average earnings per rider which has occurred, very materially reducing, or entirely offsetting, the increase in income which would be derived from the growth in traffic; and (2) the widespread, persistent and alarming increase in the cost of maintenance and operation, due largely to causes entirely beyond the control of the management. The companies, therefore, are caught between two dilemmas, both of which work to the same end.

The decrease in the average earnings per rider is the result of several important factors. The rapid growth in the size of our cities has had a profound influence upon the street railway industry. The larger city carries with it a longer average ride, which, so far as we can see, is bound to still further increase in succeeding years. Urban street railway fares in America bear no relation to the mileage traveled by the passenger. The rate of fare in most cities is fixed by the franchise ordinances at five cents for a continuous ride. As the length of the ride increases, the rate of fare per mile naturally decreases. Unless this decreased charge can be offset by economies in operation, it is obvious that the companies are bound to lose with a continued growth in the area of our cities.

The remarkable change in the character of the business districts of our large cities has also had an unfortunate effect upon the companies. The retail shopping districts, the hotel centers, the financial districts and the location of places of amusement have

been concentrated within a small area. This has necessitated a remarkable centralization of traffic by the transportation systems to cater to the public. Branch lines have been gathered in from all points and concentrated upon a few main traffic streets, which have, in consequence, become seriously congested. This congestion has necessitated slower schedules involving a heavier platform expense, that is, a larger cost for the wages of motormen and conductors, for each car mile operated, and, because of the greater length of time required to travel a given distance, has necessitated a larger investment for equipment, in proportion to the number of passengers which can be carried.

The extreme congestion on streets, crowded with vehicular and pedestrian traffic, has brought about an increase in the number and cost of accidents. The number of persons killed increased ninety-seven per cent between 1902 and 1907, while the number of injured more than doubled during the same period. The expenditures of the street railway companies for damages have increased from \$9,935,545 in 1902 to \$18,176,305 in 1907, or a gain of 93.5 per cent. This increase, in itself, ate up almost one-half of the total growth in net earnings from operation, less fixed charges, during the period.

These serious limitations upon the capacity of the surface lines of our large cities have been responsible for the remarkable growth in the demand for improved methods of transportation, such as elevated and subway lines. The disadvantages of elevated lines to the people living along the streets occupied by them have concentrated the demand largely in the direction of the subway. With the exception of Philadelphia and Brooklyn, no private company has been able to secure money for the construction of subway lines. Their enormous cost, exceeding \$2,000,000 per mile, requires a volume of traffic so large as to make the scheme impracticable under most conditions.

In spite of the growth in the size of the cities and the total volume of traffic naturally handled by the companies, the urban systems have been forced to continue the operation of a large percentage of lines which are both directly and relatively unprofitable. It is a public duty of a transportation company to provide new facilities in advance of the growth of a city, in order that new sections may be opened up and the territory provided for additional population. When, however, a large proportion of lines continue for years to be

unprofitable, and when by no reasonable estimate can it be demonstrated that a goodly number will ever be directly profitable, it follows that due consideration must be given to the company in order that it may be able to earn a surplus on one part of the system sufficient to offset the deficit on other parts.

The average layman has no conception of the number of lines which are unprofitable in our large cities. The audit of the public accountants, employed by the city comptroller of Philadelphia, of the accounts of the Philadelphia Rapid Transit Company, showed that in 1909, twenty-four lines, or twenty-six per cent of the total number of lines operated, were run at a profit, while sixty-eight lines, or seventy-four per cent of the total, were operated at a loss. In other words, upon the basis of the calculation adopted by the accountants, which involved an apportionment of the total expense, including the fixed charges of the entire system, according to a car mileage basis, over two-thirds of the lines comprising the system were unprofitable.

The most important factor, however, in decreasing the earnings of our urban street railway systems has been the steady and alarming decline in the average fare per passenger carried, due to the rapid growth in the use of the transfer. It is conceded by street railway operators that the transfer has played a large and important part in the remarkable growth in the business of these companies. Through this agency hundreds of thousands of rides per year have been stimulated which would otherwise never have been taken.

The transfer has made possible the more economical operation of city systems by providing a large car mileage upon the main, or trunk lines, radiating from the business center, from which passengers were transferred to a smaller number of cars on the cross-town, or branch lines, tapping the residential districts. If the companies had been required to operate a through service to every point in the city, the congestion in the business district would either have been rendered intolerable, or the service in the residential districts would have been woefully deficient.

Realizing these advantages, the managements of many large city companies have liberally extended the transfer privilege throughout all sections of the city. The growth in the number of transfer points from year to year was rapid, and the invitation thus extended was soon taken advantage of by the riding public. Within the last few years, however, the growth in the use of the transfer, as compared

with the cash fares paid, has been so rapid as to exercise a most demoralizing effect upon the earnings of our city systems. Ample evidence is at hand to show the importance of this movement. The following table illustrates the growth in the transfer habit on the Chicago street railways over a period of twenty-five years:

	1884.	1904.	1909.
Number of distinct routes operated	19	182	?
Number of transfer points	2	94	?
Average number of transfer passengers carried daily	4,000	207,728	315,955
Percentage of transfer passengers to revenue passengers	4.6	50.7	58.6
Average fare per passenger (cash and transfer passenger)	4.78 cents.	3.13 cents.	2.95 cents.

The same general movement is illustrated by the statistics of operation of the Brooklyn Rapid Transit Company, operating the major portion of the street railways in the city of Brooklyn. The actual and relative use of transfers from 1899 to 1907 is shown by the following table:

Year.	Passenger receipts.	No. passengers at 5 cents each.	No. transfers received.	Per cent. transfer to cash passengers.
1899	\$10,058,343.83	201,166,876	41,893,744	20.82
1900	11,206,715.01	224,134,320	42,051,904	18.7
1901	11,718,942.39	234,378,848	56,140,101	23.95
1902	12,321,264.60	246,425,292	50,883,702	20.65
1903	13,086,840.14	261,376,802	53,436,921	20.41
1904	14,429,546.04	288,590,920	56,804,382	19.68
1905	15,649,400.80	312,988,016	70,073,877	22.38
1906	17,586,721.57	351,734,430	96,455,314	27.4
1907	18,401,174.96	368,023,498	136,240,669	37.

This alarming growth, especially in the last three years covered by the enumeration, during which the use of transfers almost doubled while the revenue passenger traffic increased less than twenty per cent, has caused much serious thought.

Most convincing evidence upon this point is furnished by a statement of the receivers of the New York City Railway and of the Third Avenue Railroad system, made to the United States Circuit Court for the Southern District of New York, praying for the abolition of a large number of transfer points in the city of

New York. The figures compiled by the general manager for the receivers of the New York City Railway showed the following remarkable growth in the transfer habit and the consequent decline in the average fare per passenger carried from 1888 to 1907:

Year ended	Revenue passengers.	Transfer passengers.	% Trans. pass. to rev. pass.	Average fare, cents.
September 30, 1888	193,935,484	1,996,871	1.10	4.94
September 30, 1889	205,286,126	2,253,101	1.11	4.92
June 30, 1890	215,235,832	2,578,701	1.12	4.94
June 30, 1891	223,420,632	2,826,628	1.27	4.94
June 30, 1892	230,221,158	2,723,898	1.18	4.94
June 30, 1893	236,099,569	3,203,832	1.36	4.93
June 30, 1894	236,012,459	5,306,645	2.25	4.69
June 30, 1895	252,496,016	12,769,810	5.06	4.76
June 30, 1896	288,468,143	47,339,246	16.42	4.29
June 30, 1897	291,989,549	93,108,281	31.89	3.79
June 30, 1898	305,115,538	124,114,348	40.68	3.55
June 30, 1899	343,559,120	149,083,269	43.40	3.49
June 30, 1900	360,002,672	173,089,442	48.08	3.38
June 30, 1901	365,124,079	185,486,356	50.81	3.39
June 30, 1902	382,266,904	154,963,644	40.55	3.60
June 30, 1903	396,245,922	158,526,750	40.03	3.56
June 30, 1904	389,608,537	168,267,818	43.19	3.48
June 30, 1905	374,258,395	168,957,760	45.14	3.44
June 30, 1906	391,354,877	178,639,866	45.65	3.43
June 30, 1907	376,629,571	194,765,342	51.71	3.29
Six months ended De- cember 31, 1907 . .	189,205,244	104,304,715	55.13	3.16

Nor did the statistics chronicled for the six months ended December 31, 1907, end the decline in the average rate of fare. During the seventy days preceding April 11, 1908, when transfers were discontinued, under an order of the court already referred to, with the main part of the Third Avenue system, the average was 3.09 cents per passenger.

On September 24, 1907, however, the New York City Railway Company, the lessee of the Metropolitan Street Railway Company, had been forced into bankruptcy. The receivership was extended to the Metropolitan Company on October 1, 1907. There can be no doubt that the financial embarrassment of these companies was largely the result of the heavy decline in the average rate of fare through the operation of the transfer system.

Illustrations might be multiplied indefinitely. It is generally conceded, however, that the same development has occurred in every large city in the country.

Much has been said and written concerning three-cent fares. The average layman does not understand that in most cities there exists at the present time an average rate of fare but little above this figure for *each ride* furnished by the transportation company. The efforts of city councils and of public commissions to reduce the legal rate of fare has been generally abortive because of the protection contained in the companies franchises. The desired result, however, has been, in reality, secured as a result of the operation of the transfer system, which has brought about a condition in many of our large cities where one-half of the riding population is paying an average rate of fare but little above $2\frac{1}{2}$ cents for each ride taken.

The following comparison, made in 1908, by the special committee of Philadelphia City Councils, created to investigate street railway conditions in other cities, shows how general this movement has become :

	Average fare per passengers carried.
Pittsburgh	4.31 cents.
Cincinnati	3.68 "
Milwaukee	3.19 "
Detroit	4.33 "
Buffalo	3.2 "
Boston	3.15 "
Philadelphia	3.57 "

The public is inclined to regard a reduction of a fraction of a cent in the average rate of fare per passenger as a small matter. They forget that this small sum, if multiplied several hundred million times, representing the total number of passengers carried, runs into a vast sum of money in a year. We can easily understand the perturbation which a fractional decline causes in the minds of street railway officials and financiers, if we analyze the distribution which is made of every fare taken in by the conductors.

It is universally admitted that, at the present time, the lines in Chicago are not over-capitalized, but that, on the contrary, every cent of capitalization is represented by an equivalent value of useful property. It is conceded that these properties are in excellent phys-

ical condition and that they are operated with great ability and economy.

The "Board of Supervising Engineers, Chicago Traction," makes the following analysis of the operations of the Chicago City Railway Company for the year ending January 31, 1909:

Average gross earnings per passenger (cents)	2.95
Average expenses per passenger (including 5 per cent interest on agreed valuation of property) (cents)	2.53
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Average profit per passenger (mills)	0.42
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City's proportion (55 per cent of profit per passenger) (mills)	0.23
Company's proportion (45 per cent of profit per passenger) (mills)	0.19

In other words, upon this great system, conservatively capitalized, efficiently managed and in the pink of physical condition, there remained only forty-two one-hundredths of a cent out of every average fare for division between the city and the stockholders of the company. The average rate of fare has declined eighteen one-hundredths of a cent during the last five years.

It is recognized that the street railway companies in Boston are also conservatively capitalized and efficiently operated. The following analysis of the distribution of each five-cent fare, prepared from the report of the Boston Elevated Railway Company for the year ending September 30, 1909, is illuminating in this connection:

	Cents.
General expenses, including insurance, pensions, etc.	0.223
Cost of power	0.422
Wages and conducting transportation	1.340
Other transportation expenses	0.128
Maintenance of way	0.488
Maintenance of equipment	0.360
Depreciation	0.069
Damages and legal expenses	0.291
Taxes	0.367
Rental subways and tunnels	0.171
Interest	0.365
Rentals surface lines	0.486
Dividends	0.277
Surplus	0.013
	<hr/>
	5.000

It will be seen that only twenty-nine one-hundredths of a cent, or 5.8 per cent of each nickel, represents profit out of which dividends can be paid.

There is no other business of high repute with investors with such a slight margin of profit. No wonder that street railway managers view the decline in the average rate of fare with each succeeding year, through the operation of the transfer system, with so much concern. They realize that either the decline must be checked or corresponding reductions made in the cost of operation, if that be possible.

I believe it is generally admitted that the transfer problem is one of the most serious questions confronting street railway managers at the present time. The complete abolition of the transfer system would disorganize our street railway systems and work havoc with the present distribution of urban population. The consensus of opinion supports the conclusion that, in addition, it would spell bankruptcy for the companies involved. On the other hand, to anyone who has even casually studied the question it is apparent that drastic steps must be taken to limit the growth in the transfer habit in order that the company may be in possession of sufficient revenue properly to meet its expenses.

Evidence is at hand in every city of the flagrant abuses of the transfer privilege through sale or gift of transfers to those having no legal right to receive them. Co-operation between the public authorities, the riding public and the street railway companies would practically eliminate this abuse. The public interest clearly points to cordial co-operation in this effort, for it is obvious that every illegal ride must really be paid for by those making proper use of the transfer or paying a cash fare. Even, however, if the abuse of the transfer privilege were eradicated, it seems obvious that some radical revision in the transfer system will shortly be necessary.

The same rate of growth in the use of transfers which has prevailed in the last ten years, if continued, would have increased the percentage of transfer passengers in New York to seventy-six per cent of the revenue passengers by the expiration of the next decade. Even the most radical anti-railway man will recognize that operation, according to present standards, would be impossible under such conditions. The company's very existence depended upon de-

vising some system which would prevent a further reduction in the average rate of fare.

The relief granted to the afflicted Metropolitan Street Railway Company by the order of the United States Court, abolishing a large number of transfer points, caused an immediate rebound in the average earnings per passenger, furnishing conclusive proof of the accuracy of the diagnosis which credited a considerable share of the financial misfortunes of the company to the transfer system. From April 11, 1908, when the order went into effect, the average rate of fare rose from 3.09 cents per passenger to 3.40 cents in the year ended December 31, 1909,—a gain of 0.31 cents or 10.3 per cent. What this meant to the company can be easily understood. Had the rate of 1909 been in force in 1907 the earnings of the company would have been increased, from this source alone, \$628,446.50, which sum would have been sufficient to meet the fixed charges on thirty per cent of the total bonded debt of the company.

Many solutions of the problem have been offered. The zone system, which is so extensively employed in Europe, finds many supporters who contend that it is the only logical solution of the difficulty, because, with the increase in the size of the city and the consequent lengthening of the ride, the company must make provision to charge according to the journey taken, rather than upon the basis of a flat fare. There is much force in this argument, and were it not for the franchise stipulations in most cities, it is altogether likely that this solution would in time be extensively employed. Many other solutions have been strongly urged.

In some quarters it is believed that the entire transfer system should be reorganized, that the rate of fare for a single ride should be reduced to four cents, through the sale of six for twenty-five cent tickets, or some other method, and that those desiring to transfer should pay an additional cent for the privilege. The arguments in favor of such an arrangement are strong and logical. The company, in the first place, will probably not profit much by the change because the concession in the straight fare will offset the gain through the sale of the transfer, and thus keep the average rate of fare at approximately the present point. Second, the sale of tickets will diminish the time consumed in the collection of fares, and will thus expedite the loading of prepayment cars, which have come to be recognized as an essential part of the equipment of a

city street railway. Third, the charge for the transfer will eliminate the wholesale demand for this privilege which lies at the root of the many abuses which have grown up. Fourth, this arrangement is much more logical than the present plan, because it only requires the passenger to pay for that which he is to receive.

At the present time, taking the country as a whole, one out of every five riders uses a transfer. The operation of the line to which the transfer is given is as expensive as the lines upon which the cash fare is paid. The transfer passenger really secures two rides for five cents, or an average rate of fare of $2\frac{1}{2}$ cents for each ride taken. It is obvious that if all passengers were carried on this basis, our systems would be tremendously unprofitable. It, therefore, follows that the four riders, who do not use the transfer, in reality pay a part of the fare of the fifth man who desires this privilege. This arrangement is illogical and inequitable.

It should be noted, however, that unfortunately the solution of the transfer difficulty is much complicated by the unwise franchise provisions prevailing in many cities. A most serious defect in the franchise settlement in Chicago in 1907, in the opinion of many well-informed persons, is the clause imposing upon the company the duty of giving universal free transfers. In many cities, such as New York, the giving of transfers under stated conditions is made obligatory by state legislation. In other cases special privileges, such as franchises for certain lines, are conditioned upon the granting of transfers over stated lines.

Under these conditions it is impossible to lay down any general rule, even could it be demonstrated that any solution possesses the largest number of advantages. Two effects, however, stand out as indisputable; First, that the street railways companies, through the operation of the transfer, are suffering a rapid and alarming decline in the rate of fare per passenger carried, which, unless checked, will bring financial disaster; and second, that the first step in finding a solution of the difficulty is the education of the public to the nature, extent and effect of the transfer problem, in order that their co-operation may be secured in working out a satisfactory solution.

We turn now to an examination of the trend of operating expenses of the urban companies during the last few years. Throughout our analysis of the transfer problem we have assumed that operating expenses had remained stationary and that the reduction

in the average revenue per passenger could not be offset by corresponding economies. As a matter of fact the cost of living of street railway companies has rapidly increased, probably to a greater extent than that of the private citizen. Every item entering into the cost of operation has shown a persistent and steady increase, both actually and relatively.

The operating ratio, or a comparison of the percentage ratio of operating expenses to operating earnings, has increased from 57.7 per cent to 60.1 per cent from 1902 to 1907. In the case of the large companies having a capitalization of \$1,000,000 or over, which includes all of the large city companies, the ratio has increased during these five years from 54.8 per cent. to 58.4 per cent.

There is no more striking illustration of the increased expenses of electric railway properties than that furnished by a comparison of the cost of materials and supplies in general use. The United States Bureau of Labor reports that the average wholesale prices of street railway materials and supplies, as evidenced by operating expenses, less wages and salaries, increased from approximately 4.7 cents per car mile in 1902 to 6.2 cents per car mile in 1907, or from approximately 21.9 per cent to 24 per cent of the gross earnings.

The Philadelphia Rapid Transit Company reports the following increase in the cost of some of the most important items comprising the equipment of a street railway:

	1895.	1910.	Per cent. of 1895 price.
Ninety pound girder rail now 141 pound rail...	\$25.00	\$38.20	239
Switches	122.50	150.00	123
Frogs	83.00	97.50	117
Ties50	.65	130
Cars	27.50	55.00	200
Coal, per ton	1.72	2.30	133
Car wheels (cast iron to steel)	4.00	18.00	450
Wages—motormen and conductors.....	.21	.22	105

It will be noticed that, without exception, the prices of every important portion of the physical paraphernalia of the street railway has shown a very large increase. The total average increase in the price of the items enumerated is eighty-seven per cent.

The cost of maintaining equipment has steadily grown in spite of the fact that the use of better materials, more scientifically con-

structed apparatus, and better shop methods have made for reductions. The growth in this item of expenditure has been due almost entirely to the rapid increase in the wages of skilled workers which has attended all forms of industry, including the electric railways.

The largest item in the expenditures of electric railways is for wages and the expenses of conducting transportation. The census enumeration discloses the fact that the wages per employee has increased from \$605 per year in 1902 to \$658 in 1907, or an increase of 8 per cent. Apportioning these wages upon a car mile basis we find that the increase has been from 7.1 cents to 8.5 cents during the period. Had it not been for the fact that the electric railways were able, to some extent, to offset this increase by the use of larger cars, thus increasing the number of fares which can be handled in a day by a given car crew, it is evident that serious difficulties would have been encountered from this source. It must be evident, however, that the possibilities of continuing these economies are now much restricted. The size of our cars has perhaps reached the maximum for safety; especially when operated over the narrow streets of many of our large cities.

Actuated by a desire to give the public larger, stancher and higher-speed equipment, electric railways within the last few years have greatly improved the technical standards of street cars. These improvements have involved, in most cases, the doubling of the cost of the car and have, in addition, required a much larger consumption of power for its operation. The single truck car of 1900 weighed, on the average, about 550 pounds per passenger seat. The double truck pay-as-you-enter motor car of 1909 weighed approximately 1,300 pounds per seat—an increase of 100 per cent in weight in nine years. The cost of transporting this increased weight has been estimated by competent engineers to be from six to ten cents per pound per year, or a total increase per passenger seat of from \$39 to \$65 per annum.

The cost of maintenance as a whole has increased not only because of the higher standards required and the higher prices of materials and wages, but also as a result of the differences in the methods employed in accounting for many items of expenditure.

Up until within recent years it was a very common practice to charge a large part of the cost of renewals to the capital account. In most cities this is no longer possible, for either municipal ordi-

nances, orders of state commissions, or the demands of investors require that renewals shall be charged to operation, or shall be taken care of through a depreciation fund. The advent of depreciation into the electric railway field, which has been postponed until within recent years, carries with it many serious problems. This question is ably discussed in the paper by Mr. W. B. Jackson, pages 31 to 42 of this volume.

It is evident that the requirements of the public authorities, and of a logical system of management of the income account, makes it obligatory upon the electric railways to provide out of earnings a fund from which renewals due to obsolescence and decrepitude can be made. The problem of public regulation opens up other questions of a financial nature.

A large number of the recent mortgages contain provisions for the amortization of tangible capital, in whole or in part, through the operation of a sinking fund, or the serial retirement of the bonds. This requirement is found not only in those cities where limited term franchises are in force, but has been adopted in many sections where the corporation possesses perpetual franchises.

In cases where the company is in possession of a limited term franchise, prudence requires that some provision shall also be made for the amortization of intangible capital. The amount represented by the discount of bonds sold, the expenditures for organization, the cost of securing franchises, the profits of promoters and the outlays for interest and taxes during the construction period, must all be returned from the earnings of the property during the life of the franchise. Particular stress is being laid by financiers, at the present time, upon this matter. It is only recently that it has come to be generally recognized that a corporation should be allowed and required to take out of its profits funds to provide for the amortization of intangible property when operated under term franchises. This expense represents legitimate expenditures made by the promoters of these enterprises in order to effect the construction of the property. Justice demands that these sums be returned to them before the expiration of their franchise grants. The burden must, of course, ultimately fall upon the riding public which furnishes the revenue of the company.

The increased expenditures of urban railways for the settlement of damage claims has already been alluded to in another connection.

It seems inevitable that this tendency is a permanent one, because with the growth in the population of our large cities, and the consequent increase in pedestrian and vehicular traffic upon the streets, the liability to accident must constantly increase.

Even the administrative expenses have shown the same general tendency. The salaries of officers and clerks, according to the last special census report, rose from \$1,040 in 1902 to \$1,100 in 1907, an increase of five per cent.

Such a survey of the increases in the elements comprising the total expenses of electric railway systems is most illuminating, for it shows the reasons for the failure of the companies to largely increase their profits through the growth in their traffic. Had the various items of cost remained stationary, it is inevitable that our city systems would have shown a large growth in net earnings during the last decade. The truth is that the increases in the cost of labor, materials, equipment and supplies have in most cases more than offset the growth in earnings which would have been possible through the use of larger cars, the greater volume of traffic, more economical apparatus and better operating methods.

The reduction in the rate of fare would not perhaps have been a serious matter could there have been corresponding economies made in the expenses of operation. In spite of the most heroic efforts, railway officials have been unable to reduce expenses, because of circumstances entirely beyond their control, while the reduction in income per passenger carried has gone steadily forward.

The conclusion to be drawn from this comparison at first glance would seem to be that the securities of our large urban street railway systems, and of the electric railways in general, are coming to be undesirable investments. This conclusion is only tenable if it is granted that no remedy can be found. It is immediately apparent that the suburban and interurban properties have it within their power, in most cases, to readjust their rates so as to continue the operation of the road upon a profitable basis. The danger lies in the peculiarly anomalous position of the city systems, whose hands are tied both by the provisions of fundamental ordinances and by an unsympathetic public sentiment. It seems fair to conclude, therefore, that this problem is a serious one only in the case of the urban properties.

The remedy for the situation, in the case of the city system, is

clearly apparent. The increase in the cost of wages, equipment and materials is a matter over which the street railway companies have little or no control and which must be faced by them as by every other form of industry. The solution must be found in the readjustment of the average fare per passenger carried upon a basis which will remove the danger and accord satisfactory financial conditions.

Electric railway managers are giving thoughtful study to the matter, and it is certain that a satisfactory solution can be found, provided the public can be made to understand the situation which confronts these properties, and the justness of the proposals. A campaign of publicity for the prevention of the abuse of the transfer privilege has been prosecuted in many cities, generally with considerable success. A scientific study of the conditions of operation in each large city will doubtless disclose many methods by which transfer abuses may be curtailed or eradicated. It may be found expedient to abolish a considerable number of transfer points or to eliminate them by rerouting car lines. It is too early to predict what form the solution will ultimately take. The first step in solving the difficulty, however, must be a clear and frank explanation of the matter to the public, in order that they may see the justice of the street railways' efforts to correct abuses, and may give the corrective program the support of public opinion, without which it is doomed to failure.